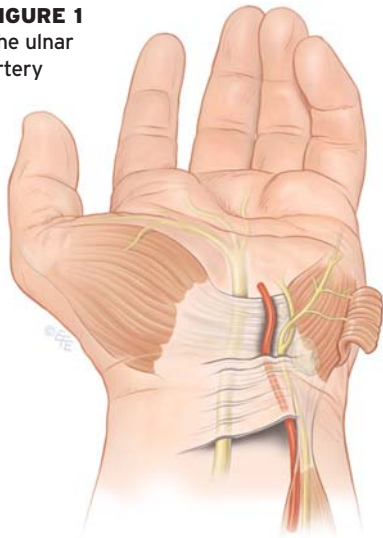


Case of the Month

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FIGURE 1
The ulnar artery



▶CASE

The patient is a 17-year-old male who sustained an accidental, small-caliber gunshot wound to his left hand 6 weeks ago. Sudden onset 2 days ago of pain, swelling, and warmth in the palm of the injured hand prompted this visit. The patient said his hand felt “tight and warm” but was only mildly painful. He denied any re-injury to the hand and did not have fever, chills, nausea, vomiting, or malaise. He also denied numbness, motor deficit, or coldness in his fingers. The patient was otherwise healthy and was not taking any medications.

HISTORY The gunshot wound had been treated at another facility, and the patient was released the same day with a recommendation to see his family physician within 2 days. This physician referred him to our clinic for evaluation of a possible occult fracture. Our initial evaluation was performed on the fifth day after the injury.

The entry wound was on the volar surface, near the pisiform bone, and the exit wound was on the dorsal surface, near the base of the fifth metacarpal. At that time, no active bleeding, exudate, or signs of cellulitis were found in either wound. Function of the patient’s fingers was limited by pain.

Neurovascular examination showed normal capillary refill with no sensory deficits. Diffuse swelling and ecchymosis of the left palm were noted. Radiographs showed no fractures or foreign bodies in the hand or wrist. A dressing and a volar splint were applied, and the patient was referred for occupational therapy.

THE CURRENT VISIT The entry and exit wounds were fully healed. The left hypothenar area was swollen, red, and warm; the area also was fluctuant and tender to palpation. Capillary refill was brisk at less than 2 seconds, and the patient had normal sensation in all his fingers. Active motion of the ring and small fingers was limited by pain, but he was able to initiate flexion and extend all his fingers. The dorsal surface of the hand appeared normal. No axillary lymphadenopathy was found.

▶WHAT IS YOUR DIAGNOSIS?

- *Superficial cellulitis*
- *Tenosynovitis*
- *Ruptured aneurysm*

▶DISCUSSION

The correct diagnosis is a ruptured aneurysm of the ulnar artery. The aneurysm was most likely formed by cavitation and/or blast forces from the gunshot wound. The patient recalled striking the palm of his left hand on a car door the day the swelling began. This blunt force presumably caused the aneurysm to burst, resulting in bleeding into the palmar area with the clot forming a natural tamponade.

Aneurysms are usually located in the superficial segment of the ulnar artery on the hypothenar eminence (see Figure 1). They are most frequently caused by acute or chronic repetitive trauma. Symptom severity correlates with the degree of vascular compromise and can include digital ischemia, embolic phenomena, and ulnar nerve palsy. Patients most often complain of numbness, pain, and paresthesias. In addition to a tender, pulsating, hypo-

thenar mass, pallor and cyanosis of the digits also may be noted. Sequelae can be neurologic or vascular.¹

TREATMENT A wrist block and incision and drainage were performed in the treatment room. A large, organized blood clot was found in the fluctuant area, followed by heavy, bright red bleeding. Direct pressure applied to the proximal ulnar artery stopped the bleeding. The patient was sent to surgery, where additional clot and scar tissue were removed. The proximal end of the ulnar artery at the wrist was found, but an intact distal end in the hand was not found. Ligation was performed on the proximal ulnar artery and the tourniquet released.

The ulnar side of the patient’s hand showed no evidence of vascular compromise at discharge and 2 weeks later. The patient returned to full activity and function 4 weeks postoperatively.

COMMENT All possible causes of acute swelling in a patient with a history of extremity wounds from a high-velocity projectile should be evaluated, especially when you are unfamiliar with the initial treatment and findings. The patient and his parent reported that no formal exploration of the wound was performed at the time of injury. This case serves as a good reminder to maintain a high index of suspicion for the more unusual possibilities in your differential diagnosis. **JAAPA**

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REFERENCE

1. Mason AC, Fochler H, Bentz ML. Traumatic ulnar artery aneurysms in children: a case report and review. *Internet J Plast Surg.* 2003;1(2). Available at: <http://www.ispub.com/ostia/index.php?xmlFilePath=journals/ijps/vol1n2/ulnar.xml>. Accessed April 9, 2007.